UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/840,087	05/06/2004	Marvin V. Manwaring	DP-310233	7861

22851 7590 08/21/2006

DELPHI TECHNOLOGIES, INC.
M/C 480-410-202
PO BOX 5052
TROY, MI 48007

EXAMINER	
ROSENBERG, LAURA B	

ART UNIT	PAPER NUMBER
3616	

DATE MAILED: 08/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/840,087	MANWARING ET AL.	
	Examiner	Art Unit	
	Laura B. Rosenberg	3616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,12-16 and 19* is/are rejected.

7)☒ Claim(s) *11,17 and 18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 May 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5/6/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: "pyrotechnic charge 24" should be changed to --pyrotechnic charge 40-- (paragraph 0019, line 5). Appropriate correction is required.

Claim Objections

2. Claims 1 and 13 are objected to because of the following informalities: "the vehicle operator" should be changed to --a vehicle operator-- (claim 1, line 3; claim 13, line 3). Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-8, 10, 13-16, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Struble et al. (6,189,929). Struble et al. disclose an apparatus (including #20) able to absorb energy in a collapsible steering column (including #12) of a vehicle (including #10) by being deformable in response to an excessive frontal impacting force (for example, represented by arrows in drawings) to the steering column so that injury to a vehicle operator is reduced, comprising:

- First steering column member (for example, including #32)
- Second steering column member (for example, including #34) connected to the first steering column member for sliding movement (can be seen in figures 2, 3)
- First anvil (for example, including #70) associated with a the first steering column member
- Second anvil (for example, including #51-56) associated with the second steering column member
- Energy absorbing member (including #50) having a first portion (for example, including #62) extending around and operable to be drawn over the first anvil and a second portion (for example, including #58, 60) extending around and operable to be drawn over the second anvil, the first and second portions having different widths (can be seen in figure 1)
- Locking device (for example, locking device can be formed by pin #70 and guide posts #53, 56) associated with the energy absorbing member and able to lock one of the portions relative to the respective anvil (locks both portions with respect to both anvils)
- The energy absorbing member absorbs energy at a first rate as the first portion is drawn over the first anvil and absorbs energy at a second rate as the second portion is drawn over the second anvil, the first and second rates being different from one another (since the radius of the first anvil #70 is larger than the radius of the second anvil #51-56, the rates of energy absorption will be different)

- The one of said first and second portions locked by the locking device relative to the respective anvil corresponds to a lower of the first and second rates (rate is lower for portion of strap #50 that extends around anvil #70 because anvil #70 has a greater radius)
- One of the first and second anvils (for example, #70) is releasibly associated with the respective steering column member (for example, different portions of #70, including #72, 76, 80, can be extended and released with respect to steering column member #32 depending upon the desired anvil radius and desired rate of energy absorption)
- The locking device includes a first surface (for example, including surface of pin #70) and a second surface (for example including surface of guide post #53) movably positioned with respect to one another
- The energy absorbing member extends between the first and second surfaces so that the energy absorbing member is selectively compressible between the first and second surfaces (depending upon the portion #72, 76, 80 that is extended) and able to generate frictional resistance to movement of the energy absorbing member relative to said first and second surfaces (can be seen in figures 2, 3)
- One of the first and second surfaces is defined by one of the first and second anvils (both surfaces are defined by the anvils)
- The locking device includes a releasing device (including #90, 92, 94, 96, 98, 100) able to separate the one anvil (#70) from the respective steering column member (#32) and, after the releasing device releases the one anvil, the energy absorbing

member moves the one anvil closer to the other of the first and second surfaces (for example, surface of #53) in response to the sliding movement and able to compress the energy absorbing member between the first and second surfaces (for example, #80 would be moved closer to the surface of #53 when a sliding movement occurs, in comparison to #72; can be seen in figures 2, 3)

- The locking device includes a third surface (for example including surface of guide post #56) fixedly spaced from the other surface and movably positioned with respect to the one surface (for example, movably positioned with respect to surface of #70), wherein the energy absorbing member extends between the third surface and the one surface so that the energy absorbing member is selectively compressible between the third surface and the one surface and able to generate frictional resistance to movement of the energy absorbing member relative to the third surface and the one surface (can be seen in figures 2, 3)

5. Claims 1, 2, 5, and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Duval et al. (2002/0020999). Duval et al. disclose an apparatus (including energy absorbing member #21, 25) able to absorb energy in a collapsible steering column (including #1, 2, 6, 8, 9) of a vehicle by being deformable in response to an excessive frontal impacting force to the steering column so that injury to a vehicle operator is reduced, comprising:

- First steering column member (for example, including #9)

- Second steering column member (for example, including #8) connected to the first steering column member for sliding movement
- First anvil (for example, including #32, 34, 36) associated with a the first steering column member
- Second anvil (for example, including #31, 33, 35) associated with the second steering column member
- Energy absorbing member (including #21, 25) having a first portion (for example, including #23, 27) extending around and operable to be drawn over the first anvil and a second portion (for example, including portion encircling roller #24, 28) extending around and operable to be drawn over the second anvil, the first and second portions having different widths (for example, the different widths of the coils can be seen in figures 10A, 10B, 11A, 11B)
- Locking device (for example, including connecting pins and retaining rods) associated with the energy absorbing member and able to lock one of the portions relative to the respective anvil (locks both portions with respect to both anvils)
- One of the first and second anvils (for example, including #32, 34, 36) is releasibly associated with the respective steering column member (for example, including #9)
- The energy absorbing member defines an aperture (for example, including aperture through center of coil stack and roller #24, 28; can be seen in figures 10B, 11A) and the locking device including a pin (including #32, 34, 26) releasibly inserted in the aperture (can be seen in figures 6, 7; also described in claim 1)

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Struble et al. (6,189,929) in view of Duval et al. (2002/0020999). Struble et al. disclose the releasing device including a controller that cause a motor to release or extend the various portions of the anvil (#70) depending upon sensor feedback, rather than a pyrotechnic charge. Duval et al. teach an apparatus (including energy absorbing member #21, 25) for absorbing energy in a collapsible steering column (including #1, 2, 6, 8, 9) comprising a locking device (including connecting pins and retaining rods) including a releasing device (including #41-48) able to separate an anvil (for example, including retaining rods #32, 34, 36) from a respective steering column member (for example, including #9), the releasing device including a pyrotechnic charge (including pyrotechnic displacement system #41-48). It would have been obvious to one skilled in the art at the time that the invention was made to modify the releasing device of Struble et al. such that it comprised pyrotechnic charge as claimed in view of the teachings of Duval et al. so as to provide an inexpensive and quick means for adjusting the amount of energy absorption in a collapsible steering column assembly.

Allowable Subject Matter

8. Claims 11, 17, and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Faust discloses an energy absorbing system for a collapsible steering column in which an energy absorbing strip pulls rollers together as the steering column moves.

Duval et al. and Li et al. ('757) disclose an energy absorbing system for a collapsible steering column including an energy absorbing member, anvils, and a locking device.

Riefe et al. disclose an energy absorbing system for a collapsible steering column including an energy absorbing member and anvils.

Li et al. ('536) disclose an energy absorbing system for a collapsible steering column including an energy absorbing member, anvils, and a locking device including a pyrotechnic releasable member.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura B. Rosenberg whose telephone number is (571) 272-6674. The examiner can normally be reached on Monday-Friday 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Dickson can be reached on (571) 272-6669. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Laura B. Rosenberg
Patent Examiner
Art Unit 3616

LBR

8/17/06
PAUL N. DICKSON
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600